

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow. Claims 30-71 have been rejected. Claims 30, 33-35, 37, 44, 47-49, 51, 53, 57-62, and 71 have been amended.¹ Accordingly, Claims 30-71 are pending in the present Application.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, are presented, with an appropriate defined status identifier.

No new matter has been added.

Claim Rejections - 35 U.S.C. § 112 ¶ 2

On page 2 of the Office Action, Claim 62 was rejected under 35 U.S.C. § 112 ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter the Applicants regard as the invention.

Claim 62 has been amended in accordance with the Examiner's suggestion. Specifically, Claim 62 as amended recites "silver in an amount of greater than 0 to less than 0.012%." The Applicants submit that the rejection of Claim 62 under 35 U.S.C. § 112 ¶ 2 has been overcome.

Claim Rejections - 35 U.S.C. §§ 102(e) and 103(a) - Rao et al. '186

On page 4 of the Office Action, the Examiner rejected Claims 30-38, 40-52, 54-56, and 71 under 35 U.S.C. § 102(e) as being anticipated by, and alternatively under 35 U.S.C. § 103(a) as being unpatentable over, U.S. Patent No. 5,874,186 ("Rao et al. '186").

¹ It should be noted that Claim 1 of issued U.S. Patent No. 6,117,594 ("the '594 patent") is directed to a "lead-acid cell" and recites, in combination with other elements, a "grid supporting structure comprising a lead-based alloy consisting essentially of lead, tin in the range of about 0.8% to about 1.1%; the tin in a ratio to calcium of greater than about 12:1 and silver in the range of greater than 0 to about 0.015%" (emphasis added). Pending independent Claims 30 and 44 differ from Claim 1 of the '594 patent at least in the fact that that Claims 30 and 44 recite a "grid supporting structure formed by book mold gravity casting," such claims are still allowable for at least the same reasons as Claim 1 of the '594 patent.

Claims 30 and 44 are in independent form. Claims 31-38, 40-43 and 71 depend from Claim 30. Claims 45-52 and 54-56 depend from Claim 44.

Claim 30 (as amended) is directed to a "lead-acid cell for a battery" comprising, in combination with other elements, "a grid supporting structure formed by book mold gravity casting and having a layer of active material coupled thereto," in which the grid supporting structure comprises "tin in the range of about 0.8% to about 1.1%," "calcium in an amount such that the ratio of tin to calcium is greater than about 12:1," and "silver in the range of greater than 0 to about 0.015%."

Claim 44 (as amended) is directed to "grid supporting structure for use in a lead-acid battery" that is "formed by book mold gravity casting" and that comprises, in combination with other elements, "tin in the range of about 0.8% to about 1.1%," "calcium in an amount such that the ratio of tin to calcium is greater than about 12:1," and "silver in the range of greater than 0 to less than 0.015%."

The combinations of elements recited in independent Claims 30 and 44 are not identically disclosed by Rao et al. '186 under 35 U.S.C. § 102(e). The "grid supporting structure" recited in Claims 30 and 44 (as amended) includes "silver in the range of greater than 0 to about 0.015%" (Claim 30) and "silver in the range of greater than 0 to less than 0.015%" (Claim 44), which is not identically disclosed by Rao et al. '186.

Rao et al. '186 purports to disclose "silver in the range of about 0.018% to about 0.030%." The silver percentages recited in Claims 30 and 44 (as amended) are not within the 0.018% to 0.030% range disclosed in Rao et al. '186. Accordingly, Claims 30 and 44 (as amended), and corresponding dependent Claims 31-38, 40-43, 45-52, 54-56, and 71 are not anticipated by Rao et al. '186.

The combinations of elements recited in independent Claims 30 and 44 (as amended) also would not have been obvious over Rao et al. '186, a single reference, under 35 U.S.C. § 103(a). Rao et al. '186 does not disclose, teach, or suggest the combination of elements recited in Claims 30 and 44 (as amended), for example a "grid supporting structure" that

includes “silver in the range of greater than 0 to about 0.015%” (Claim 30) or “silver in the range of greater than 0 to less than 0.015%” (Claim 44).

The subject matter recited in independent Claims 30 and 44, considered as a whole, is not identically disclosed by Rao et al. '186 under 35 U.S.C. § 102(e), and would not have been obvious over Rao et al. '186 under 35 U.S.C. § 103(a) to a person of ordinary skill in the art. The rejection of Claims 30-38, 40-52, 54-56 and 71 under 35 U.S.C. § 102(e) as being anticipated by, and alternatively under 35 U.S.C. § 103(a) as being unpatentable over, Rao et al. '186 is improper. Therefore, independent Claim 30 (and corresponding dependent Claims 31-38, 40-43 and 71) and independent Claim 44 (and corresponding dependent Claims 45-52 and 54-56) are patentable.

Claim Rejections - 35 U.S.C. § 102(b) and § 103(a) - Rao et al. '087

On page 6 of the Office Action, the Examiner rejected Claims 30-71 under 35 U.S.C. § 102(b) as being anticipated by, and alternatively under 35 U.S.C. § 103(a) as being unpatentable over, U.S. Patent No. 5,691,087 (“Rao et al. '087”), as evidenced by Rao et al. '186.

Claims 30, 44, and 57 are in independent form. Claims 31-43 and 71 depend from Claim 30, Claims 45-56 depend from Claim 44, and Claims 58-70 depend from Claim 57.

Claim 30 (as amended) is directed to a “lead-acid cell for a battery” comprising, in combination with other elements, “a grid supporting structure formed by book mold gravity casting and having a layer of active material coupled thereto,” in which the grid supporting structure comprises “tin in the range of about 0.8% to about 1.1%,” “calcium in an amount such that the ratio of tin to calcium is greater than about 12:1,” and “silver in the range of greater than 0 to about 0.015%.”

Claim 44 (as amended) is directed to “grid supporting structure for use in a lead-acid battery” that is “formed by book mold gravity casting” and that comprises, in combination with other elements, “tin in the range of about 0.8% to about 1.1%,” “calcium in an amount such that the ratio of tin to calcium is greater than about 12:1,” and “silver in the range of greater than 0 to less than 0.015%.”

Claim 57 (as amended) is directed to “plate formed by book mold gravity casting for use in a battery” that comprises, in combination with other elements, “tin in an amount of about 0.8% to about 1.1%,” “calcium in an amount such that the ratio of tin to calcium is greater than about 12:1,” and “silver in an amount of greater than 0 to about 0.015%.”

The combinations of elements recited in independent Claims 30, 44, and 57 (as amended) are not identically disclosed by Rao et al. '087 under 35 U.S.C. § 102(b). As noted above, the “grid supporting structure” (Claims 30 and 44) and the “plate” (Claim 57) in the present Application include “silver in the range of greater than 0 to about 0.015%,” “silver in the range of greater than 0 to less than 0.015%,” and “silver in an amount of greater than 0 to about 0.015%,” respectively, which is not identically disclosed by Rao et al. '087 under 35 U.S.C. § 102(b).

Rao et al. '087 purports to disclose “the silver content of the alloys . . . from about 0.015 to 0.045%.” The purported disclosure of Rao et al. '087 is not, however, made with “sufficient specificity” to constitute an anticipation of Claims 30, 44, and 57 under 35 U.S.C. § 102(b). See M.P.E.P. § 2131.03. None of the specific alloys disclosed in Rao et al. '087 is within the ranges claimed in Claims 30, 44, and 57 (as amended).

None of the alloy compositions disclosed in Rao et al. '087 fall within the ranges recited in Claims 30, 44, and 57 (as amended), and therefore there is not “sufficient specificity” in the range disclosed in Rao et al. '087 to constitute an anticipation of Claims 30, 44, and 57 (as amended).

Accordingly, Claims 30, 44, and 57 (as amended), and corresponding dependent Claims 31-43, 45-56, and 58-71, are not anticipated by Rao et al. '087.

The combinations of elements recited in independent Claims 30, 44, and 57 (as amended) also would not have been obvious over Rao et al. '087 under 35 U.S.C. § 103(a), either alone or in any proper combination with Rao et al. '186. Rao et al. '087 does not disclose, teach, or suggest the combination of elements recited in Claims 30, 44, and 57 (as amended).

In addition to the fact that Rao et al. '087 does not disclose specific alloys within the ranges recited in Claims 30, 44, and 57 (as amended), the Applicants have also provided evidence of unexpected results within the claimed range that are not appreciated by the disclosure of Rao et al. '087. See Declaration of M. Eric Taylor dated April 6, 2000 (filed in the prior U.S. Patent Application No. 09/337,830, now U.S. Patent No. 6,117,594 and provided in the present Application with the Reply and Amendment dated December 19, 2001).

The subject matter recited in independent Claims 30, 44, and 57, considered as a whole, is not identically disclosed by Rao et al. '087 under 35 U.S.C. § 102(b), and would not have been obvious over Rao et al. '087 as evidenced by Rao et al. '186 under 35 U.S.C. § 103(a) to a person of ordinary skill in the art. The rejection of Claims 30-71 under 35 U.S.C. § 102(b) as being anticipated by, and alternatively under 35 U.S.C. § 103(a) as being unpatentable over, Rao et al. '087 as evidenced by Rao et al. '186 is improper. Therefore, Claims 30-71 are patentable.

* * *

The Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

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